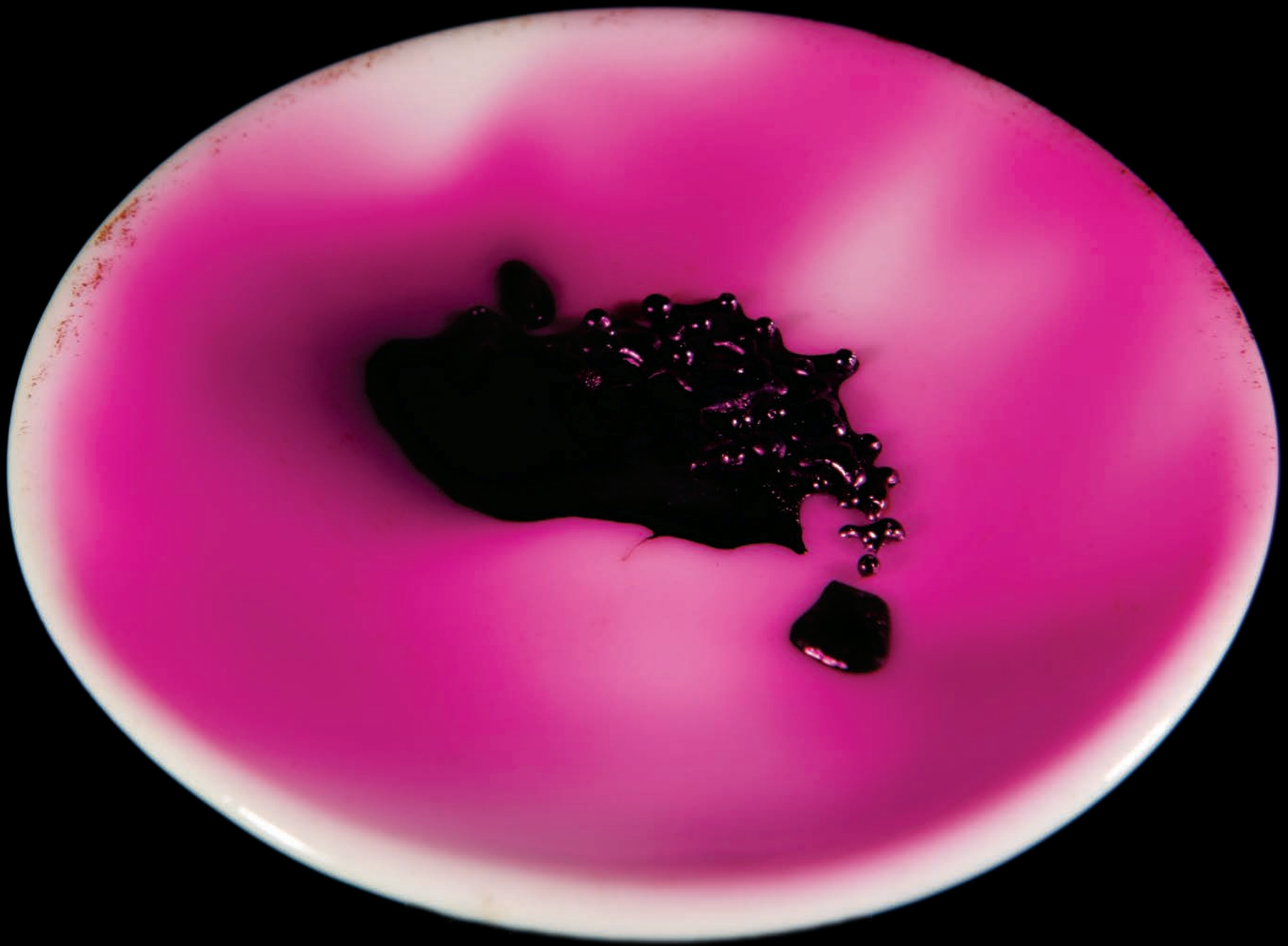
I

Iodine

53



Iodine

AS YOU MOVE DOWN the halogen column, the elements mellow a bit, from vicious fluorine (9) to deadly chlorine (17) to barely-liquid bromine (35)—until you reach iodine, an element so comparatively benign that it is used to cure hoof fungus in horses.

Iodine is a solid at room temperature, but like bromine it's just barely hanging on. Gentle heating will melt it, at which point it immediately evaporates into a thick, dense, beautiful violet vapor.

Iodine taught me the difference between smoke and vapor. You can photograph smoke against a black background by lighting it from the side, because smoke is made up of tiny particles that reflect light. It is *impossible* to photograph a vapor, even a colored vapor, against a black background because no matter how much light you shine in from the side, there are no particles to reflect light, only individual molecules. The only way to see a vapor is by how it absorbs light coming toward you from a bright background. This fact wasted considerable time when I attempted to take a nice picture of iodine vapor for my black-background poster.

Iodine, usually in the form of a few percent dissolved in alcohol (which causes the stinging, not the iodine), was once widely used as a disinfectant, and to a limited extent it still is. Like chlorine and bromine above it in the periodic table, iodine disinfects by brute chemical attack on microbes, something they are not able to develop resistance to. If the fancy topical antibiotics we use today ever lose their effectiveness, the halogens will always be there to save us, or at least our hooves.

After every halogen comes a noble gas, but here it's the least noble of the lot, xenon.

◀ Iodine evaporates into a beautiful violet vapor when heated. There's a torch under the plate in this photograph.

▼ Iodine deficiency causes goiter, but goiter is uncommon today because of iodized salt, making iodized gum unnecessary.

▲ Iodine dissolved in alcohol has been used as a disinfectant for generations. The sting is from the alcohol, not the iodine.

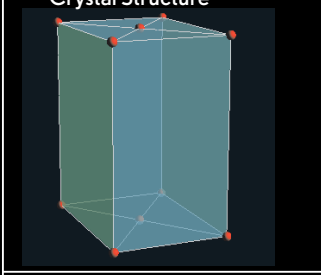
▲ Resublimated iodine for veterinary use as a disinfectant.

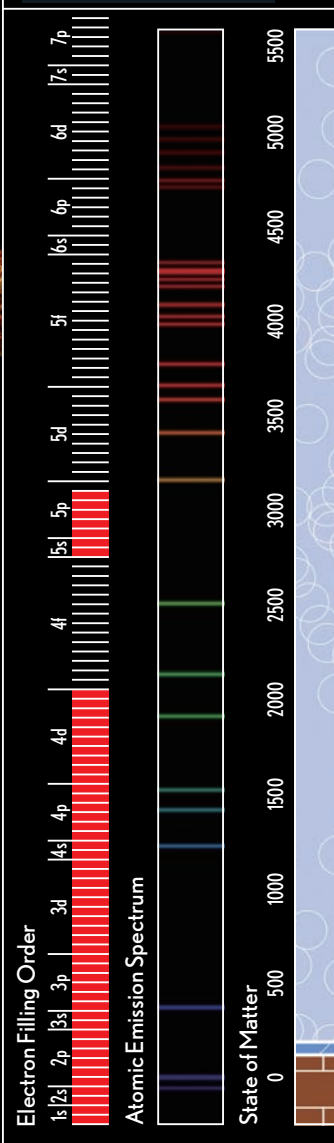
◀ Pretty, old tincture-of-iodine bottles are common collectors' items.

▶ An iodine-containing contrast agent used in imaging the heart in CT scans.

Elemental

Atomic Weight
126.90447
Density
4.940
Atomic Radius
115pm
Crystal Structure




Electron Filling Order
1s 2s 2p 3s 3p 4s 3d 4p 5s 4d 5p 6s 4f 5d 6p 7s 6d 7p
Atomic Emission Spectrum
State of Matter
0 500 1000 1500 2000 2500 3000 3500 4000 4500 5000 5500